UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,124	01/20/2004	Olav Finkenwirth	NOS-102	8794

42419 7590 11/03/2008

PAULEY PETERSEN & ERICKSON
2800 WEST HIGGINS ROAD
SUITE 365
HOFFMAN ESTATES, IL 60195

EXAMINER	
WANG, EUGENIA	
ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
11/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/761,124	FINKENWIRTH ET AL.	
	Examiner	Art Unit	
	EUGENIA WANG	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *1-23 and 35* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the amendment received August 21, 2008:

a. Claims 1-35 are pending, with claims 1-23 and 35 withdrawn as being drawn to a non-elected invention.

b. It is noted that US 4937152 (Sato et al.) (a) has been applied using a different interpretation and (b) has been applied in a similar manner, using a secondary reference. Such changes to the rejection are necessitated by the amendment, thus the action is final.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 23-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. Claim 23 recites the limitation "the separator" in line 10. There is insufficient antecedent basis for this limitation in the claim. Since two separators are listed, the recitation of "the separator," which does not clearly refer back to one of the separators does not have sufficient antecedent basis and is thus indefinite. Since claims 24-34 are dependent on claim 23, they are rejected for the same reason.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 24, 29, 31, and 34 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4937152 (Sato et al.).

As to claim 24, Sato et al. teach of the structure of the solid oxide fuel c ell in fig. 1 (fig. 1; col. 1, lines 10-15). At least a dual layer sealing structure exists (electrolyte [44], o-ring [47], and the unlabeled portion next to the electrodes) which extends between two adjacent separators (interconnect [45]). Sato et al.'s electrolyte layer [44] on the edges of the stacked solid oxide structure constitute the insulating layer, while the o-ring [47], the unlabeled portion next to the electrodes, or the combination of the two constitute a sealing layer. For prosecution, the combination of the o-ring and the unlabeled portion constitute the sealing layer, wherein the sealing layer comprises of a different material than the electrolyte material, as indicated by fig. 1 wherein different crosshatchings of the o-ring and the electrolyte are used. (Such a structure inherently has a method of making, wherein the an insulating layer is applied to one predetermined area of at least one separator of the fuel cell, a sealing layer is applied, wherein the insulating layer is arranged between the sealing layer and the separator onto which it is applied. Such a method is inherent, as is necessary for forming such a symmetrical stacked structure (wherein the insulating layer must be applied to the separator in some manner, as it is sandwiched between two different separators), as seen in fig. 1, barring specification with respect to (a) the manner in which the insulating

layer is applied to the separator and (b) further specification as to the relation of the separator to the insulating layer. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22,13 USPQ2d, 1320, 1322 (Fed. Cir. 1989).)

As to claim 29, Sato et al.'s insulating layer and electrolyte layer are inherently simultaneously applied.

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)

In the case of the instant application the basis for expectation of inherency is that the layer is the same. Therefore the application of one necessarily means the application of the other.

The Examiner requires applicant to provide that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product.

Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

As to claim 31, Sato et al.'s fig. 1 shows a solid oxide fuel cell stack (fig. 1; col. 1, lines 10-15).

As to claim 34, it is inherent to Sato et al.'s fuel cell stack that the sealing layer (spacer [10]) is applied after insulating layer (electrolyte [5]). In the case of the instant application the basis for expectation of inherency is that any other method would not yield the structure of Sato et al. in fig. 1. The inherency of this method is evidenced the symmetrical stacking structure, wherein at least one sealing layer (o-ring [47] and the portion next to the electrodes) must be applied after the insulating layer (electrolyte [41]), or else such a stacked, symmetrical structure would not be able to be formed. (Please see the rejection to claim 29 as to the Office's policy on inherency.)

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 25-27, 28, 32, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al.

The previous rejections made with respect to Sato et al. above are incorporated herein.

As to claims 25-27, Sato et al. does not specifically disclose that the structure of fig. 1 uses a thermal method to apply the insulating/electrolyte layer (as required by claims 25-26), wherein the thermal process is vacuum plasma spraying or atmospheric plasma spraying (as required by claim 27). However, such a process would be obvious. First it is noted that in the rejection above that the electrolyte layer and the insulating layer are the same. Sato et al. teach that a known method for applying an electrolyte is plasma thermal spraying (col. 3, lines 61-68). With such a teaching within Sato et al., one of ordinary skill in the art would have found it obvious to use such a method with respect to the structure taught in fig. 1, wherein the use of such a known method would have provided the predictable result of forming an electrolyte layer. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to use plasma thermal spraying to apply the electrolyte, as such a process would have yielded the predictable result of forming an electrolyte layer.

As to claims 28, Sato et al. teach that with respect to fig. 1, the electrodes are formed on the electrolyte (col. 1, lines 18-22). However it is not specified that the insulating layer (electrolyte) of fig. 1 is applied in one process step, wherein an electrolyte layer is applied to the electrolyte layer. However, such a process would still be obvious. In another embodiment, Sato et al. the application of the

electrolyte/insulating layer is done simultaneously in one process step, since the electrolyte [5] is formed on an air electrode [4], and thus the air electrode must be formed prior to applying the insulating layer (electrolyte [5]) (col. 3, lines 61-68).

With such a teaching within Sato et al., one of ordinary skill in the art would have found it obvious to use such a method with respect to the structure taught in fig. 1, wherein the use of such a known method would have provided the predictable result of forming stacked elements necessary in a fuel cell (electrolyte on an electrode). Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to apply the insulating layer (electrolyte) in one process step onto an electrode layer, as such a process would have yielded the predictable result of forming stacked elements necessary in a fuel cell (electrolyte on an electrode).

As to claims 32 and 33, the method as obviated by Sato et al. do not teach of using a plasma coating nozzle, wherein the nozzle extends to a certain displacement area in order to apply the electrolyte layer to the insulating area, where the nozzle is extended to a point that it covers all required sealing portions. However, such a process would be obvious. First it is noted that Sato et al. teach that a known method for applying an electrolyte is plasma thermal spraying (col. 3, lines 61-68) (although not to the embodiment of fig. 1). With such a teaching within Sato et al., one of ordinary skill in the art would have found it obvious to use such a method with respect to the structure taught in fig. 1, wherein the use of such a known method would have provided the predictable result of forming an electrolyte layer. Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was

made to use plasma thermal spraying to apply the electrolyte, as such a process would have yielded the predictable result of forming an electrolyte layer. With the use of plasma thermal spraying obviated, the method with respect to the plasma nozzle coating would be inherent, as the structure would necessarily need the plasma coating nozzle to extend to a certain displacement area in order to apply the electrolyte layer and the insulating area, where the nozzle is extended to a point that it covers all required sealing locations. Otherwise, the structure would not exist (as no electrolyte would be deposited in the areas where electrolyte is shown).

5. Claims 24-29 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. in view of JP 63-285873 (Arima).

As to claim 24, Sato et al. teach a fuel cell with a solid electrolyte [5], in wherein the electrolyte [5] in combination with spacer [10] is interpreted as the at least dual layered sealing structure, as two different layers are present (col. 4, lines 52-54; fig. 2(c)). Furthermore, it is noted that the sealing structure (spacer [10] with the electrolyte [5]) extends between two separators [3], as the structure as a whole extends between the two separators. The electrolyte [5] is seen as the insulating layer of the sealing structure, wherein the electrolyte [5] layer is applied to both the separator [3] and fuel cell via air electrode [4] (fig. 2(a); fig. 2(c)). As seen in fig. 2c, electrolyte layers lie between adjacent separators. The spacer [10] is interpreted to be the sealing layer, as it has sealing properties (since fuel and air paths are formed in it and delivered to the fuel cell, and thus it must have some sort of sealing property, as it limits the reactant flow to the paths formed within it) (fig. 2(c)). The spacer [10] is indicated to be a

different material than that of the electrolyte, as the cross-hatching in fig. 2(c) is different for the spacer [10] and the electrolyte [5]. (It is noted that the structure of fig. 2(c) inherently includes the method of forming it, and thus includes applying the insulating (electrolyte [5]) layer and sealing layer (spacer [10]).

Sato et al. do not teach that the insulating layer (electrolyte) is arranged between the sealing layer (spacer [10]) and the separator that it is applied to.

However, Arima teaches of an electrolyte [1] that is extended across the fuel and oxidant gas inlets (fig. 2). The electrolyte plate of Arima that extends across the inlet and outlet manifolds has insulating heat conductive portions on the edges (abs). The motivation for extending the electrolyte (insulating layer) of Sato et al. in the manner taught by Arima (across the inlet and outlet manifolds) is to impart good insulting capability and high heat conductivity, which reduces the adverse effect of a temperature differential between the gas inlet and outlet and the central portion of the electrolyte plate (abs). Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to extend the electrolyte plate of Sato et al. across the spacer [10] (indicative of the inlet/outlet portions of the fuel and oxidant) with an additional heat conductive layer, as taught by Arima in order to achieve high insulating capability and high heat conductivity, which helps alleviate the adverse affect of having a temperature differential across the electrolyte.

As to claims 25-27, Sato et al. teach that the electrolyte layer [5] (which also serves as the insulating layer) can be formed using plasma thermal spraying (col. 3, lines 61-68).

As to claims 28, 29, 32, and 33, since the electrolyte [5] of Sato et al. serves as the insulating layer, its application is done simultaneously in one process step (as applied to claims 28, 29, and 33). It is noted that since the electrolyte [5] is formed on an air electrode [4], the air electrode must be formed prior to applying the insulating layer (electrolyte [5]) (as applied to claim 28) (col. 3, lines 61-68). Additionally, the plasma coating nozzle would inherently extend to a certain displacement area in order to apply the electrolyte layer and the insulating area, where the nozzle is extended to a point that it covers all required sealing locations (as applied to claims 32 and 33).

As to claim 31, Sato et al.'s fig. 2c shows the fuel cell member [1] (as seen in fig. 2a) as a stack. The fuel cell is a solid oxide fuel cell, as indicated by the yttria-stabilized zirconia electrolyte (col. 3, lines 61-63).

As to claim 34, it is inherent to Sato et al.'s fuel cell stack that the sealing layer (spacer [10]) is applied after insulating layer (electrolyte [5]).

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/103 rejection.

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

"In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the

allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)

In the case of the instant application the basis for expectation of inherency is that any other method would not yield the structure of Sato et al. The inherency of this method is evidenced by the fact that single fuel cells (which requires the depositing of insulating layer (electrolyte [5]) are made before a stack is made) (col. 1, lines 17-45; fig. 2(a); fig. 2(c)). Accordingly, the stacks are formed after the individual fuel cells are formed, and thus the spacers (sealing layer [10]) must be applied after the application of the electrolyte.

The Examiner requires applicant to provide that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product.

Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

6. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. in view of Arima, as applied to claim 24, in view of US 5603875 (Giller et al.).

Sato et al. does not teach that one predetermined sealing area of at least one separator plate is roughened prior to being coated with the insulating layer.

Giller et al. teaches the deposition of a zirconia (wherein yttria stabilized zirconia is one embodiment, the same substance as the electrolyte [5] of Sato et al.) substance by plasma deposition (the same method used in Sato et al.), wherein the surface of the substrate that is to receive the plasma deposition is roughened (col. 4, lines 36-46; col. 5, lines 20-43). The motivation for wanting to roughen the surface of the substrate prior to applying plasma stray deposition is to promote adhesion and bounding of the solid zirconia layer (layer that is being deposited) (col. 5, lines 40-43). Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to want to roughen at least one predetermined sealing area of at least one separator plate (i.e. the substrate as referred to by Giller et al.) in Sato et al. prior to plasma spraying the zirconia in order to promote adhesion and bounding of the zirconia layer. (It is noted that although Giller et al. is not drawn to a solid oxide fuel cell like Sato et al., the process (plasma spraying) and the material (zirconia, especially yttria stabilized zirconia) is the same. Accordingly, Giller et al. teaches of solving a problem that is associated with applying zirconia via plasma spraying. In this manner, Giller et al. can be combined with Sato et al., as it solves the same problem: providing better adhesion and binding via the process.)

Response to Arguments

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. It is noted that the reason for withdrawal of the previous rejection of record is due to Applicant's amendments to the claim, which changed the scope of the claims.

However, Examiner would like to comment on Applicant's arguments.

Applicant argues that Sato et al. does not teach the dual layered structure that extends between two adjacent separators, specifically that the electrolyte [5] does not contact the spacer [10] and thus does not constitute a multi-layer seal that extends between two separators.

Examiner respectfully disagrees. Since both spacer [10] and electrolyte [5] are separate sealing layers, together, they constitute an at least dual-layered sealing structure, barring specification as to the nature of dual-layers. Since spacer [10], a portion of the sealing structure, extends between two separators, the structure as a combination does extend between two layers as well. (Furthermore, it is noted that even fig. 1, as applied in the 102 rejection reads on this as well, as set forth in the above rejection.) Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22,13 USPQ2d, 1320, 1322 (Fed. Cir. 1989). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the layers in the dual-layered structure are in direct contact) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). However, it is noted that Arima is relied upon to

provide motivation as to why one of ordinary skill would want to extend the electrolyte to the ends of fuel cell, thus obviating the extension of the electrolyte to the ends (through the inlet/outlet portion) (which is necessary with respect to the amended feature that the insulating layer is between the sealing layer and separator onto which the insulating layer is applied). Accordingly, Examiner submits that all of the claim limitations have been met, and the rejection of record is maintained.

Applicant argues that their amended features further specifies the method, specifically that the method recites that the insulating layer is arranged between the sealing layer and the separator onto which the insulating layer is applied resulting in a "sealing layer-insulating layer-separator" arrangement.

However, with respect to the previous rejection, Arima has been relied upon as a secondary reference to Sato et al., wherein extension of the electrolyte [5] is provided, thus obviated the newly claimed feature. See the above rejection for further details. Additionally, a separate 102 rejection has been applied using another embodiment of Sato et al. With respect to the 102 rejection, Examiner would like to further point out that the claim language is broader than Applicant is interpreting. The resultant structure of the method claimed does not necessarily limit to a "sealing layer-insulating layer-separator arrangement." This is because an "at least dual0layered sealing structure" is claimed using comprising language. Furthermore, there is no specification as to the nature of the application of the insulating layer to the separator. Accordingly, Sato et al.'s fig. 1 reads on the claimed method. See the above rejections for further details.

Accordingly, Examiner submits that all of the claim limitations have been met, and the rejection of record is maintained.

With respect to the arguments regarding the 103 rejections, Applicant argues that the prior art used to obviate the rejected claims (Giller et al.) do not cure the deficiencies of the primary reference (Sato et al. or, now, additionally Sato et al. in view of Arima). Applicant does not argue how the combination is not proper. Therefore, the Examiner maintains the obviousness rejections and upholds the rejection of the primary reference, as above.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUGENIA WANG whose telephone number is (571)272-4942. The examiner can normally be reached on 7 - 4:30 Mon. - Thurs., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. W./
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795